

Thesis Title: 5G Network Slicing for Next Generation Intelligent Transport Systems (ITS)

Applications are invited for a PhD position at EURECOM, Sophia-Antipolis, France in collaboration with Davidson Consulting (<https://www.davidson.fr/>).

Position: planned for 36 months

Issue Date: 1st of August

Start date: planned for the 1st of October

Location: Eurecom, Campus SophiaTech, in the French Riviera.

Doctoral School: UPMC (<http://www.upmc.fr/en/index.html>)

Title: 5G Network Slicing for Next Generation Intelligent Transport Systems

Description: The successful candidate will conduct both academic and experimental system research toward 5G network slicing tailored for both critical and non-critical ITS services including (1) safety applications for train control signaling as an ultra-reliable low latency communication (uRLLC) service type, (2) infotainment applications for consuming multimedia content for passengers inside the train as an extreme mobile broadband (xMBB) service type, and (3) maintenance and monitoring applications for sensors and CCTV cameras as an massive machine type communication (mMTC) service type. These services rely on (a) performance isolation with different levels of sharing for each service, and (b) additional radio access network (RAN) and core network (CN) functions such as mobility prediction, network-controlled resource management, and service continuity. Particular focus will be also given to support network slicing for moving cells to retain the service continuity considering a high-speed train use-case, which will be carried out in collaboration with the considered railway company.

We plan to pursue an experimentally-driven research to validate the proposed approach and methods using the facilities and platforms (OpenAirInterface¹ and Mosaic-5G²) available at Eurecom. Performance evaluation will be done through simulation/emulation tools as well as real-world experimentation in a small-scale deployment at Eurecom open5G Lab with the support of the team in charge of the platforms.

¹ <http://www.openairinterface.org>

² <http://mosaic-5g.io>

Context: The research work will be carried out in close collaboration with Davidson Consulting and their partners as well as a community of researchers and developers already working on OpenAirInterface and Mosaic-5G platforms.

Requirements:

We are looking for candidates who are self-motivated and would like to conduct high quality research, and publish in top venues. Candidates should have a Master's Degree (or an equivalent degree) in Electrical Engineering, Computer Science or a closely related area, preferably with a focus on networking or communications. We also expect candidates to have very good analytical skills (probability theory, mathematical optimization), background knowledge in the area of wireless networking, and the understanding of the current technology landscape (5G and 4G) as well as the key enabling technologies such as SDN/MEC/NFV. Good C/Python/Matlab programming skills and experiences are a plus. A good level of written and spoken English is mandatory (knowledge of French is *not* required). Finally, the selected candidate will be well-organized to integrate and work in groups.

Applications

Application evaluation will start immediately and will continue until position is filled. Interested individuals should submit:

1. One to two pages of research interests corresponding to thesis description.
2. Detailed CV including publication list.
3. At least two recommendation letters.
4. Transcripts of courses taken at graduate and undergraduate levels with grades.

Applications should be sent to secretariat@eurecom.fr and nikaeinn@eurecom.fr mentioning the following reference: NS_Mobility PhD Position.

Contact

If you have any question or need more information about the position, we encourage you to browse the web page (<http://www.eurecom.fr/~nikaeinn>) or contact us directly.

About

EURECOM: EURECOM is an elite French graduate school and research center conducting high quality research in the areas of Communication Systems, Data Science, and Digital Security.

Eurecom³ is located in new Campus SophiaTech⁴ in Sophia Antipolis (between Nice and Cannes), Europe's leading international science park, in close proximity with a large number of research units of leading multi-national corporations in the telecommunications, semiconductor and biotechnology sectors, as well as other outstanding research and teaching institutions. A freethinking, multinational population and the unique geographic location provide a quality of life without equal.

Davidson: Created in 2005, Davidson is a consulting company specialized in management and technology with a presence in eight countries spread across Europe, the United Arab Emirates and North America. Within the Davidson Consulting Group, Davison R&D coordinates the R&D activities through a well-established partnership with world-class research laboratories, proposing technical and managerial guidance for R&D strategies, proposing guidance regarding technical anticipations to industrial clients.

³ <https://goo.gl/maps/jUQJXTVHF4C2>

⁴ <https://goo.gl/maps/3WoFstVD4vS2>